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PROCEEDINGS OF THE
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VOLUME 8. 1939.

NEW SPECIES OF *DENDROSOTER* FROM INDIA AND AFRICA (HYM., BRACONIDAE)

By G. E. J. NIXON, B.A., F.R.E.S.

(*Imperial Institute of Entomology.*)

THE original purpose of this paper was to describe three species of *Dendrosoter* from India, received for identification from the Forest Research Institute, Dehra Dun. One of them was subsequently found to be identical with a palearctic species.

While examining further material in the British Museum, I found a few species taken by Mr. R. E. Turner in Cape Province. I consider these of such interest because of the light they throw on the structural range of the genus within the broad definition given below, that I include descriptions of them in the following pages.

Apart from the ten palearctic species ascribed to *Dendrosoter* (Fahringer, 1930), only three other Old World members of the genus have apparently been described; these are African insects. I have seen the type of one of them, *D. camerunus* Enderlein, thanks to the kindness of the authorities of the Deutsches Entomologisches Institut, to whom I here express my grateful acknowledgement. I have been unable to recognise the other two species from their descriptions. A reference to them is given at the end of the paper.

Also, I include in the key the only three species of the genus that exist in the British Museum.

The types of the new species are in the British Museum.

DORYCTINAE.

Dendrosoter Wesmael.

The genus, in the admittedly wide sense in which I have interpreted it, is characterised essentially by the presence of a raised callous-like swelling on each side of the frons against the inner eye-margin. This is a conspicuous feature and the only character of generic value which the species in this paper have in common.

It is probably true that *Dendrosoter*, through my wide interpretation of it, now possesses an unnatural flexibility. Certainly such species as *D. elegans* sp. n. and *D. olynthus* sp. n. show differences which appear to lie outside the range of generic variation. I do not think, however, that any useful purpose would

be served, at this stage, by creating new genera in an arbitrary manner. Any step of that kind would best be preceded by a much more exhaustive study of the DORYCTINAE and related subfamilies than I can so far claim to have made.

In this paper, the apparent second tergite of the abdomen, which is made up of two fused segments, will be referred to as " tergite (2, 3) " and treated as though it were one segment. If " tergite 2 " is referred to, this is then to be taken as the morphologically true second segment, which in the particular case is in some way sharply delimited.

Key to the species.

(♀♀.)

1. Abdomen subpetiolate; petiole from 2½ to 3 times as long as its apical width . . . . . 2.
   Abdomen not subpetiolate; petiole at most 1½ times as long as its apical width . . . . . 3.
2. Tergite (2, 3) with only a trace of striation at base; stigma pale only basally . . . . . *elegans* sp. n., S. Africa.
   Tergite (2, 3) longitudinally sculptured all over basal half (hence tergite 2 sharply delimited); stigma pale yellow throughout *pallidistigma* sp. n., S. Africa.
3. Nervus parallelus emitted from the 2nd discoidal cell at about middle and not in the least forming a straight line with the median vein; recurrent nervure exactly interstitial . . . . . 4.
   Nervus parallelus emitted from above the middle of the 2nd discoidal cell and in any case, if not exactly interstitial with the median vein, then forming with it a virtually straight line; recurrent nervure always received clearly into the 2nd cubital cell . . . . . 5.
4. Petiole finely longitudinally striate-reticulate *camerunus* Enderlein, Cameroon.
   Petiole evenly reticulate, reticulations without a longitudinal tendency *olynthus* sp. n., S. Africa.
5. 2nd abscissa of the radius at least about twice as long as the 1st intercubitus and forming with the very short 1st abscissa an angle of 90° or less. (Spp. with tergite (2, 3) entirely smooth; ocelli arranged in a triangle whose base is much shorter than its sides) . . . . . 6.
   2nd abscissa of the radius at most 1½ times as long as the 1st intercubitus and then tergite (2, 3) is sculptured at least basally; angle between 1st and 2nd abscissa of radius always more than 90° . . . . . 7.
6. 2nd abscissa of the radius towards its apex strongly curved upwards so that the 2nd cubital cell is markedly widened apically; mesonotum in profile sloping very gradually to pronotum. (Sp. with the fore-wings strongly embrowned and having a complete middle transverse hyaline fascia and a shorter one along the 2nd intercubitus; appearing further very shining owing to their surface being unusually sparsely hairy) *labdacus* sp. n., India.
   2nd abscissa of the radius towards apex not curved upwards, so that the 2nd cubital cell is more or less parallel-sided; mesonotum in profile sloping almost perpendicularly to pronotum. (Sp. with the fore-wings usually more or less hyaline, at most with a vague greyish clouding; much less shining than in *labdacus*, their surface much more hairy) *hartigii* Ratz., Pal. region.
7. Tergite (2, 3) sculptured over less than basal half, not sharply margined laterally from base to apex; mesopleura smooth and shining in part . 8.
   Tergite (2, 3) sculptured over more than its basal half, sharply margined laterally from base to apex; mesopleura dull, sculptured all over. (Spp. with the ocelli arranged almost in an equilateral triangle) . . . . 10.

8. Ocelli arranged in a triangle whose base is clearly longer than its sides. (Sp. with the pronotum very short, in profile projecting only very slightly or not at all beyond the mesonotum; petiole tending to be striate-reticulate, though in small individuals the striate element predominates) *thelepte* sp. n., India.

   Ocelli arranged in a triangle whose base is clearly a little shorter than its sides . . . . . 9.

9. Mesonotum thickly covered with fine adpressed pubescence; recurrent nervure received into the 2nd cubital cell at a distance from transverse cubitus several times less than its own length. (Sp. with the mesonotum somewhat gibbose in front, falling away perpendicularly to the pronotum) *protuberans* Nees, Europe.

   Mesonotum at most with minute scattered hairs, appearing glabrous; recurrent nervure received into the 2nd cubital cell at a distance equal to at least half its own length . . . *middendorfii* Ratz., Europe, India.

10. Tergite (2, 3) striate-punctate, the striate element strong; 2nd abscissa of the radius not much longer than the 1st intercubitus; predominantly pale brownish-yellow sp. . . . . *sipius* sp. n., S. Africa.

    Tergite (2, 3) very closely punctate-reticulate, appearing shagreened; 2nd abscissa of the radius much longer than the 1st intercubitus; predominantly dark brown sp. . . . . *orithylus* sp. n., S. Africa.

(♂♂.)

1. 3rd segment of the maxillary palpi enormously dilated, oval. (Sp. with the radius and cubitus much widened; recurrent nervure almost interstitial; stigma of hind-wings small, about 2½ times as long as wide) *protuberans* (Nees).

   3rd segment of the maxillary palpi of ordinary form . . . . . 2.

2. Radius, together with the two distal abscissae of the cubitus strongly dilated . . . . . 3.

   Radius, together with the two distal abscissae of the cubitus of ordinary form . . . . . 4.

3. Mesonotum in front sloping very gradually to pronotum, almost flat here; fore-wings very shining owing to their being unusually sparsely hairy. (Sp. with the fore-wings strongly embrowned and marked with hyaline fasciae) . . . . . *labdacus* sp. n.

   Mesonotum in front sloping more or less perpendicularly to pronotum; fore-wings not shining, being pubescent to the normal extent. (Sp. with the fore-wings nearly hyaline in small examples, but much darkened in larger ones, in which hyaline fasciae similar to those of *labdacus* appear, though less sharply defined (figs. 7, 8)) . . . . . *hartigii* (Ratz.).

4. Ocelli arranged in a triangle whose base is very slightly longer than its sides; mesonotum clothed with fine, very short pubescence *thelepte* sp. n.

   Ocelli arranged in a triangle whose base is slightly shorter than its sides; mesonotum almost glabrous . . . . . *middendorfii* (Ratz.).

Dendrosoter olynthus sp. n.

♀. Dark brown with reddish suffusions which are most noticeable on the frontal callouses, propodeum above, and the petiole. All the tibiae narrowly whitish at base. *Head* clothed everywhere with whitish hairs which are longer, finer and more conspicuous on face and cheeks (fig. 17). Face and malar space evenly reticulated, the meshes about the size of an ocellus. Clypeus ill-defined, feebly semicircular. Vertex reticulate-rugose with a transverse tendency. Temples, and head behind the eyes, reticulate-rugose. Cheeks behind becoming smoother, the surface shining, with moderate-sized punctures. Ocelli arranged in a virtually equilateral triangle. Antennae with 31–32 segments; funicle 1 equal in

length to 2. Frontal callouses without well-defined cristulae showing as darkened lines. Maxillary palpi as long as the front tarsus. Eyes large, the shortest distance between them and the occipital margin being less than half the greatest length of the eye. *Thorax*: Mesonotum somewhat truncate in front (fig. 15), its middle lobe being gibbose and falling away perpendicularly to pronotum; densely clothed with short, silvery-golden hairs which are adpressed over the greater part of the lobes but less so and longer elsewhere. Notauli deeply impressed, strongly crenate and converging on a coarsely reticulate sunken area. Lobes of the mesonotum finely rugose, the sculpture stronger than in *D. orithylus* and *D. sipius*. Mesopleura coarsely reticulate except for an oblique shining area which has a certain amount of sculpture. Propodeum transverse, somewhat characteristically reticulate and with long pale hairs at the sides and behind; at base it shows a feeble carina. Fore-wings very pale fuscous, without hyaline fasciae (figs. 4, 5); lower basal cell of hind-wings much longer than in the other species dealt with in this paper, except *D. camerunus* End., the 1st abscissa of the median vein being almost as long as the 2nd. Legs: hind femora thickly clothed with fine silky, mostly adpressed hairs; hind tibiae without outstanding hairs and with a row of 5 or 6 inconspicuous, short, adpressed spines spaced along its whole length; segment 2 of the hind tarsus slightly less than half 1; hind coxae on their outer surface strongly rugose. *Abdomen*: petiole appearing markedly longer than wide, though the difference on measurement only about 5 : 4, its surface evenly reticulate all over. Tergite (2, 3) sharply margined laterally from base to apex; a fine shining line shows the suture between the two tergites; basally to this line, the surface is striate-reticulate, though the striate element is weak; the sculpture becomes progressively finer apically and beyond the suture it passes from punctate-reticulate to merely finely and very closely punctate. Following tergites with a conspicuous row of ciliae. Epipleura with much pale pubescence. Ovipositor a little shorter than the body.

Cape Province: Pondoland, Port St. John (*R. E. Turner*), 1924, *May* 1 ♀, Type, *Jan.* 1 ♀, *Feb.* 1 ♀. The female taken in February has the frontal callouses, propodeum and petiole entirely black; the petiole is markedly transversely reticulate.

This and the next species are amply distinct—as emphasised in the key—from all the other species described or dealt with in this paper, chiefly because of venation and pubescence. *D. olynthus* is probably characterised by its sculpture, especially of abdomen; certainly it is the sculpture of the abdomen that separates it most easily from the following species.

Dendrosoter camerunus Enderlein.

Dendrosoter camerunus End., 1912, *Arch. Naturgesch.* **78** (A) (2) : 36.

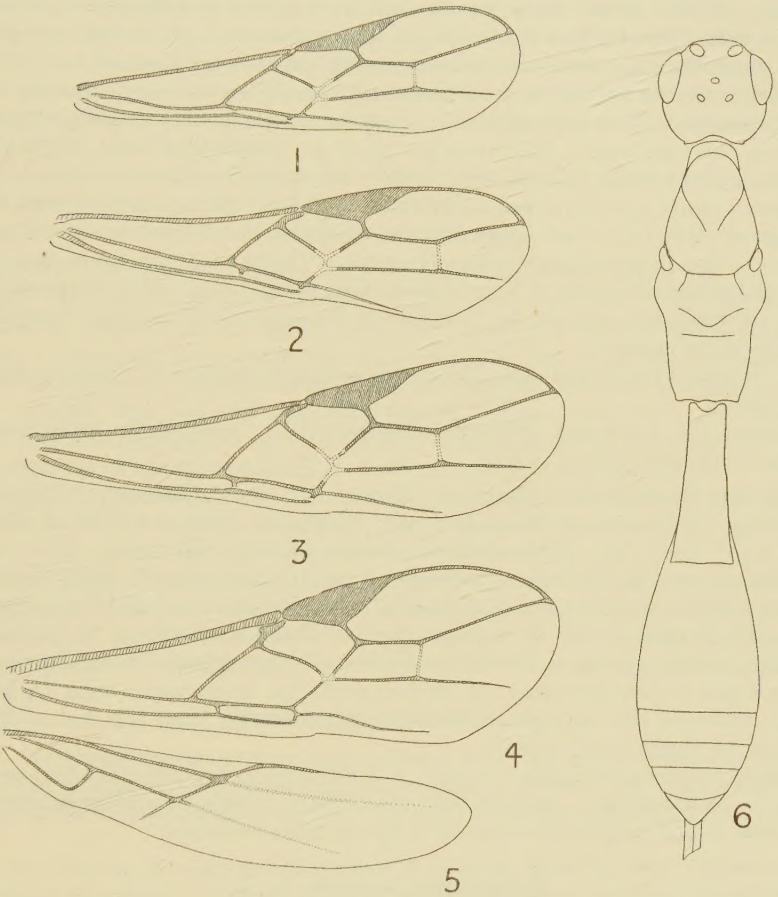
This species is closely and very naturally related to *D. olynthus* and may be, I think, only a geographical race of it. It differs from *D. olynthus* as follows:—

Face and frons pale brown. Clypeus more sharply defined, clearly triangular. Vertex falling away to the occipital margin more steeply; this declivous part of the vertex is more or less flat and is finely transversely striated, the striae somewhat broken.

Lobes of the mesonotum showing a slightly stronger sculpture than in *D. olynthus*. Mesopleura coarsely reticulate all over, showing no trace of a smooth space as in *D. olynthus*. Lower limiting margin of the sternauli less clearly defined than in *D. olynthus* and the mesosternum a little less shining owing to the presence of a stronger surface sculpture. Lower basal cell of the hind-wing shorter than in *D. olynthus*, the 1st abscissa of the median vein being about $\frac{3}{4}$ the length of the 2nd. Hind tibiae without short adpressed spines such as occur in *D. olynthus*. Hairs of the hind femora less noticeable.

Petiole slightly more narrowed to base, evenly and finely striate-reticulate; the striate element is well marked. Tergite (2, 3) from the base to the very feebly indicated suture with a sculpture essentially like that of the petiole but much finer; on its apical half tergite (2, 3) appears finely and evenly beaded. Ciliae of the apical tergites shorter and much less conspicuous than in *D. olynthus* (this may be more apparent than real, as the type is not in very good condition).

CAMEROON: (*Conradt*) described by Enderlein from one ♀, the type.



FIGS. 1–6.—1. *Dendrosoter elegans* sp. n., fore-wing of ♀; 2. *D. orithylus* sp. n., fore-wing of ♀; 3. *D. sipius* sp. n., fore-wing of ♀; 4. *D. olynthus* sp. n., fore-wing of ♀; 5. *D. olynthus* sp. n., hind-wing of ♀; 6. *D. elegans* sp. n., body of ♀.

Dendrosoter middendorfii (Ratzeburg).

Bracon middendorfii Ratz., 1848, *Ichn. Forstins.* **2** : 32.

♂♀. Body on the whole dark brown. Frontal callouses contrasting reddish-brown. Legs paler than body; tibiae (to a less extent the anterior pair) narrowly whitish at base; in small examples this colour differentiation is not obvious.

♀. *Head* not widened behind the eyes. Vertex behind the ocelli with transverse striation which towards temples breaks up into vague scaly-reticulation. Temples and

head behind the eyes usually virtually smooth; in largest examples there is some very weak scaly-reticulation. Frontal callouses with a number of transverse, more or less broken cristulae. Ocelli arranged in a triangle whose base is clearly a little shorter than its sides. Antennae with about 20–24 segments; funicle 1 about $\frac{2}{3}$ as long as 2. Maxillary palpi somewhat short, hardly twice as long as greatest length of eye. *Thorax* in profile essentially like that of *D. labdacus* (cf. fig. 22) but the mesonotum markedly declivous in front. Mesonotum appearing characteristically glabrous, its minute hairs extremely sparse; evenly scaly-reticulate, especially on anterior lobe, reticulations without a transverse tendency. Notauli usually fairly sharply defined, though their definition at all appears to depend chiefly on the fact that the lobes of the mesonotum are swollen. Mesopleura except within the upper anterior impression smooth and shining; sternauli feebly crenate. Propodeum with its two dorsal areas sculptured, usually evenly scaly-reticulate, but in largest examples with raised rugulosities; areola sometimes distinct, sometimes indistinct but in any case open below. Fore-wings (see fig. of ♂). Legs: hind tibiae with extremely short, semi-erect hairs on its outer side; segment 2 of the hind tarsus almost exactly half 1; front tarsus nearly 1½ times as long as its tibia. *Abdomen*: petiole about 1½ times as long as its apical width, evenly and closely striated; sometimes there is present a central smooth line, one or two of the striations being obliterated. Tergite (2, 3) striated on basal third, the medial striations tending to be concentric about the mid-basal point; frequently these medial striations fade out, leaving two more or less semicircular patches of striation on each side of the segment.

♂. Stigma of hind-wings nearly 6 times as long as wide (fig. 12). Tergites (2 3) to 7 feebly excised.

Length: ♂♀, 2·4–5 mm. (without ovipositor of ♀); most of the males examined (Konian) are about 2 mm.

United Provinces: Chakrata, Konian (*C. F. C. Beeson*), 7 ♂♂, 3 ♀♀, bred *July* 1924 ex *Picea Morinda* Link; Chakrata, Bodyar (*C. F. C. Beeson*), 6 ♀♀, 2 ♂♂, bred *July* 1924 ex *Cedrus Deodara* Loud.; Europe.

This species, which I have interpreted as *D. middendorfii*, being unable to find any difference between the Indian material and material from Europe, is closely related to the *D. hartigii*-group. Besides similarity in facies and venation, although the male shows no sexual dimorphism in the appearance of the veins of the fore-wing, *D. middendorfii* has in common with *D. hartigii* and *D. labdacus* the 1st segment of the funicle shorter than the 2nd, a feature peculiar to these three species.

Owing to great variability in size, it is difficult to say what is characteristic about *D. middendorfii*. Almost bare mesonotum, shape of ocellar triangle and sculpture of 2nd tergite probably sum up its main features.

Dendrosoter labdacus sp. n.

♂♀. Body light honey-brown, the abdomen sometimes slightly darker on apical half. First 5 or 6 segments of antennae paler than those following which are darkened. Middle and hind tibiae (to a less extent the front ones) narrowly whitish at base; hind tibiae sometimes darkened in ♂; hind tarsi whitish in both sexes. Fore-wings with a strong yellowish-fuscous clouding, and with 2 sharply defined hyaline fasciae, one cutting off about basal third of stigma, the other restricted to the length of the 2nd intercubitus.

♀. *Head* distinctly widened behind the eyes (fig. 18). Frontal callouses with a number of transverse broken cristulae. Vertex more or less finely aciculated, though the sculpture tends to be indefinite. Temples and head behind the eyes entirely smooth and shining. Antennae with 19–20 segments; segment 1 of funicle about half the length of 2; first 3 segments very slender, smooth more or less glabrous, markedly narrower than the apical

segments. Maxillary palpi short, only a little longer than the greatest length of the eye. Ocelli arranged in a triangle whose base is much shorter than its sides. *Thorax*: Mesonotum with only sparse, minute adpressed hairs, appearing almost glabrous, very gradually declivous in front, almost flat here (fig. 22); sculpture of mesonotum consisting of broken scaly-reticulation with a slight transverse tendency. Lobes of mesonotum not raised, that is, the notauli, though sharply impressed, superficial. Mesopleura smooth and shining almost everywhere; sternauli showing as a smooth furrow. Legs short; front tarsus not much longer than its tibia, about 4 : 3; all the femora and tibiae very smooth, without outstanding hairs; segment 2 of the hind tarsus almost exactly half 1. Wings: (fig. 11); recurrent nervure received into 2nd cubital cell at a distance from intercubitus equal to about its own length. Propodeum with some vague rugulosities but without a clearly defined areola. *Abdomen*: petiole only very slightly longer than its apical width, closely and, on the whole, evenly striated; tergite (2, 3) completely smooth. Ovipositor very slightly shorter than the abdomen.

♂. Antennae with 19–22 segments. Wings (figs. 9, 10). Abdomen long, narrow, spindle-shaped; tergites (2, 3) to 7 deeply excised.

Length: ♂♀, 1·8–3·2 mm. (excluding ovipositor of ♀).

United Provinces: Dehra Dun, F.R.I. Compound *Type loc.* (*C. F. C. Beeson*). 46 ♀♀ (Type ♀, 24.x.1924), 9 ♂♂, bred ex *Pinus longifolia* Roxb.; Dehra Dun, Asarori (*R. R. Singh*), 5 ♀♀, 1 ♂, bred ex *Pinus longifolia* Roxb.

This species and the closely related *D. hartigii* form a natural species-group, characterised chiefly by the venation, *i.e.* the long 2nd abscissa of radius and the angle between the 1st and 2nd abscissae of radius; the short 1st funicular segment is also peculiar to the two species, though it should be noticed that the same segment in the species I call *D. middendorfii* (Ratz.) is also short.

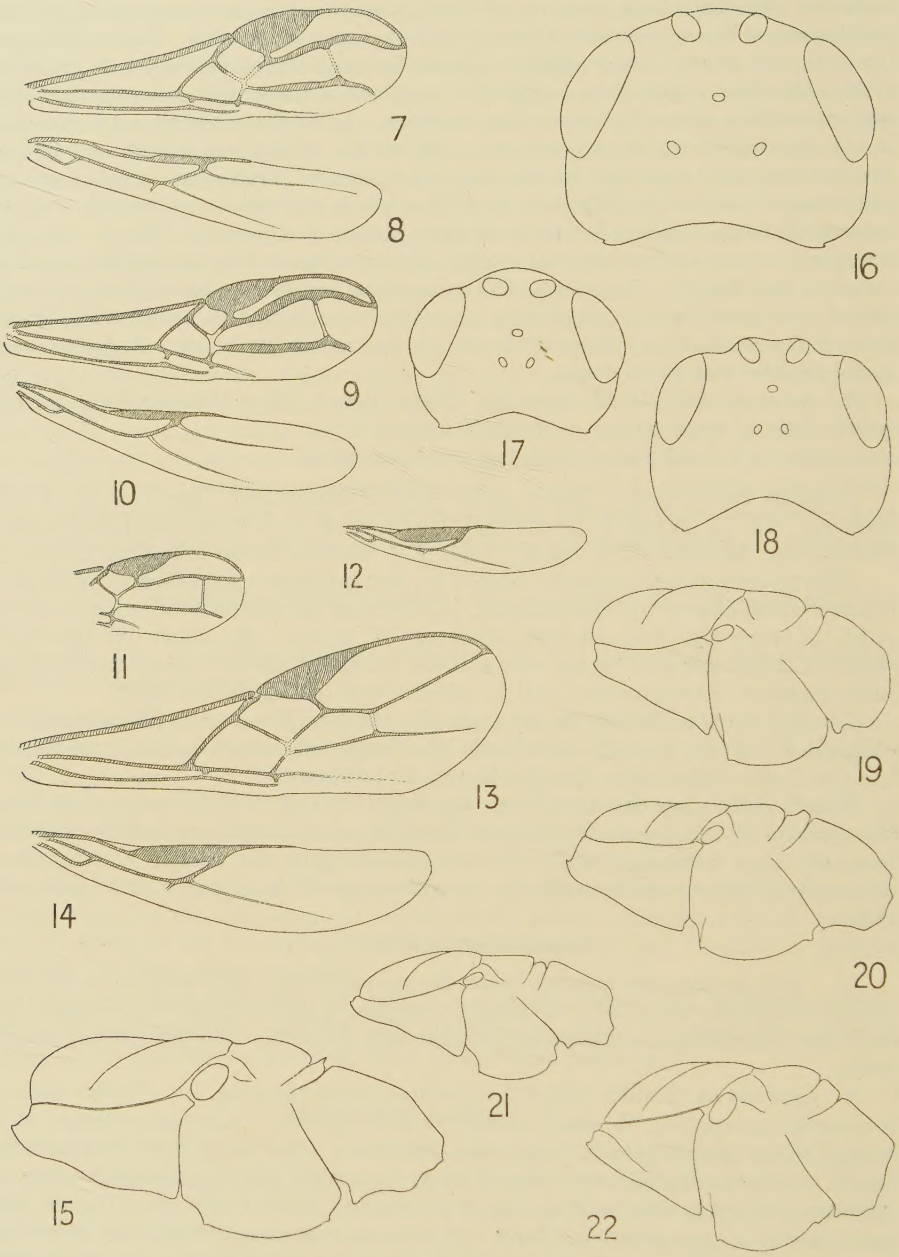
Apart from the differences mentioned in the key, the ♀ of *D. hartigii* has the ovipositor shorter, hardly two-thirds the length of the abdomen, and the ♂ has the front tibiae more curved than in *D. labdacus*.

Picard (1928) has discussed very carefully the so-called differences between *Caenopachys* Förster and *Dendrosoter* Wesmael, and has shown that for generic purposes they have no value. The reasons he gives for sinking *Caenopachys* under *Dendrosoter* seem to me to be very sound and I have accordingly followed him.

Dendrosoter thelepte sp. n.

♂♀. Body predominantly honey-brown, the legs paler; the colour seems to be variable; usually the petiole, at least in the largest examples, is suffused with darker colouring; sometimes, too, the lobes of the mesonotum, especially the middle one of the ♀, has a blackish patch.

♀. *Head* not at all wider behind the eyes than across them (fig. 16). Vertex vaguely transversely aciculated; in small examples almost smooth. Antennae arranged in a triangle whose base is clearly longer than its sides. Antennae with 25–32 segments; funicle not obviously thickened towards apex; segment 1 very slightly longer than 2. Maxillary palpi long, fully twice as long as the greatest length of the eye. Temples and head behind the eyes, smooth. *Thorax*: Mesonotum somewhat truncate and gibbose in front (fig. 19); its lobes prominent, the notauli lying along deep furrows. The sculpture of the mesonotum consists of vague scaly-reticulation with a well-marked transverse tendency. Mesopleura, except the upper anterior impression, smooth and shining; sternauli represented by a smooth furrow. Propodeum with a fairly well-defined areola, which is open below, and with 2 large nearly smooth to smooth dorsal areas; the surface within the areola and elsewhere on the posterior face of the propodeum with raised rugosities. Fore-wings (see ♂). Legs: anterior tarsus not much longer than its tibia, about 9 : 7; segment 2



FIGS. 7–22.—7. *Dendrosoter hartigii* (Ratz.), fore-wing of ♂; 8. *D. hartigii* (Ratz.), hind-wing of ♂; 9. *D. labdacus* sp. n., fore-wing of ♂; 10. *D. labdacus* sp. n., hind-wing of ♂; 11. *D. labdacus* sp. n., section of fore-wing of ♀; 12. *D. middendorfii* (Ratz.), hind-wing of ♂; 13. *D. thelepte* sp. n., fore-wing of ♂; 14. *D. thelepte* sp. n., hind-wing of ♂; 15. *D. olynthus* sp. n., thorax of ♀ (lateral); 16. *D. thelepte* sp. n., head of ♀ (from above); 17. *D. olynthus* sp. n., head of ♀ (from above); 18. *D. labdacus* sp. n., head of ♀ (from above); 19. *D. thelepte* sp. n., thorax of ♀ (lateral); 20. *D. sipius* sp. n., thorax of ♀ (lateral); 21. *D. elegans* sp. n., thorax of ♀ (lateral); 22. *D. labdacus* sp. n., thorax of ♀ (lateral).

of the hind tarsi hardly more than half 1; outer side of the hind tibiae with semi-erect hairs which are about two-thirds the width of the tibia. *Abdomen*: Petiole very slightly longer than apically wide, striate-reticulate; in small examples the reticulate element is less in evidence. Tergite 2 with strong, often somewhat wrinkled striations over rather less than its basal half, though the actual extent of the sculptured area seems to be variable, both in length and breadth. Ovipositor slightly longer than the abdomen.

♂. Stigma of hind-wings between 5 and 6 times as long as wide (figs. 13, 14); recurrent nervure received into 2nd cubital cell by a distance equal to one-third, or less, of its own length. Tergites (2, 3) to 7 feebly excised.

Length: ♂♀, 2·6–4 mm. (excluding ovipositor of ♀).

United Provinces: Dehra Dun, Jhajra, *Type loc.* (*C. N. Chatterjee*): 2 ♀♀ (Type ♀, 13.vii.1924), 9 ♂♂, bred *June* and *July* 1924 ex *Shorea robusta* Gaertn.; Dehra Dun, Golatappar (*C. F. C. Beeson*), 3 ♀♀, 3 ♂♂, bred *Nov.–Dec.* 1922 ex *Shorea robusta* Gaertn. The series from Golatappar comprises smaller individuals than that from Jhajra and is more marked with darker colouring.

Dendrosoter orithylus sp. n.

♀. Body brown; sides of thorax, scutellum and course of notauli a little darker. Front and middle coxae and all the trochanters testaceous. Petiole in one of the larger females from Port St. John suffused with black. The smallest female (Port St. John) is more or less uniformly brown and paler than the other four females. Stemmaticum same colour as the vertex. The 2 ♀♀ from Katberg are darker than the 2 larger ♀♀ from Port St. John and on tergite (2, 3) have a pale brown longitudinal band on each side and extending as far as the lateral suture. *Head* distinctly widened behind the eyes, but less so in the smallest female. Frontal callouses without raised cristulae forming darkened lines, their surface being clearly scaly-reticulate over its greater posterior part. Face rugulose, rugulosities with a weak transverse tendency. Vertex dull, finely rugulose, with an indication of fine wrinkles immediately behind the posterior ocelli. Temples and head behind the eyes dull, with fine surface sculpture (more or less scaly-reticulate) all over. Apart from the face, the head is almost glabrous. Antennae with 28–32 segments; funicle 1 slightly longer than 2. Maxillary palpi about three times as long as the greatest length of the eye. *Thorax*: Mesonotum sloping gradually to pronotum, not at all gibbose in front, as in the following species (cf. fig. 20); its hairs minute, adpressed and sparse; lobes somewhat raised; sculpture of mesonotum showing raised rugulosities on its sunken posterior area (much less in evidence in the smallest ♀), elsewhere dull, rugulose with a slightly transverse tendency. Mesopleura everywhere, apart from the upper anterior impression, dull, evenly scaly-reticulate; sternauli feebly crenate. Mesosternum (ventral to sternauli), beautifully and evenly scaly-reticulate. Propodeum elongate, somewhat flattened, dull, rugulose all over and without a trace of an areola. Fore-wings with fuscous cloudings (fig. 2); stigma yellowish on basal third. Legs: front tarsus not much longer than its tibia, about 6 : 5; hind coxae and all the femora, though to a less extent the front and middle pairs, dull, scaly-reticulate; segment 2 of hind tarsus about half 1; segment 3 of hind tarsus slightly shorter than 5; hind tibiae without outstanding hairs. *Abdomen*: petiole about $1\frac{2}{3}$ as long as apically wide, with fine, irregular striations on a much-sculptured surface. Tergite 2 sculptured over fully $\frac{3}{4}$ of its surface, at the sides almost to apex; the sculpture consists almost exclusively of fine punctate-reticulation, giving a shagreened effect; the two fused tergites are divided laterally by a short furrow. Ovipositor nearly $\frac{2}{3}$ as long as the whole body.

Length: ♀, 3·8–4·8 mm. (without ovipositor).

Cape Province: Pondoland, Port St. John (*R. E. Turner*), *Nov.–Dec.* 1923, 3 ♀♀ (one the type). E. Cape Province: Katberg (*R. E. Turner*), *Nov.* 2 ♀♀.

Dendrosoter sipius sp. n.

♀. Closely related to the preceding species and differing from it as follows :—

Light yellowish-brown, almost testaceous. Stemmaticum almost black. Prescutellar fovea sometimes blackish. *Head* not, or hardly widened behind the eyes. Sculpture of vertex, temples and head behind the eyes, hardly different from that of *D. orithylus*, though the vertex is without raised wrinkled rugulosities on the ground sculpture. *Thorax* (fig. 20) : Segment 3 of the hind tarsus not at all shorter than 5; 2, ⅔ as long as 1; front tarsus longer in proportion to its tibia, about 35 : 21. Fore-wings yellowish, of paler tint than in *D. orithylus*, but showing a similar distribution of light and shade; almost basal half of stigma pale; 2nd abscissa of radius shorter (fig. 3). *Abdomen* : petiole distinctly shorter, being only a little longer than its apical width, its sculpture slightly coarser, best describable as striate-reticulate with the striate element predominating. Extent of sculpture on tergite (2, 3) much as in *D. orithylus*; sculpture itself striate-punctate, though at the sides, and especially beyond the short lateral suture, merely coarsely scaly-reticulate. Ovipositor about ⅔ as long as the body.

Length : 3–3·8 mm. (without ovipositor).

Cape Province : Pondoland, Port St. John (*R. E. Turner*), *Nov.* 1923, *Jan.* 1924, 2 ♀♀ (Type ♀, Nov.).

This species and *D. orithylus* are probably characterised by their glabrous appearance, absence of cristulae on the frontal callouses, dull sculptured mesopleura and degree and extent of sculpture on tergite (2, 3) together with the short lateral furrow marking the division of this tergite into its two morphologically separate segments.

Dendrosoter elegans sp. n. (fig. 6).

♀. Brown. Head, a large oblong patch on mesonotum, extending on to all the lobes, and tergite (2, 3) paler. Legs predominantly pale brown. *Head* clearly a little narrower behind the eyes than across them, rather strongly narrowed posteriorly. Vertex with a broad, shallow, longitudinal furrow; surface of vertex somewhat shining, very weakly rugulose with a transverse tendency. Temples and head behind the eyes more or less smooth and shining in one ♀, but with a feeble surface sculpture in the other. Ocelli arranged in a triangle whose base is very slightly longer than its sides. Frontal callouses with raised broken cristulae on about anterior half, and sharply margined on their inner side. Antennae with 31 segments; funicle 1 about as long as 2. Eyes small, virtually round, the shortest distance between them and the occipital margin about equal to their diameter. Maxillary palpi nearly as long as the front tarsus. *Thorax* of narrow build, markedly narrowed in front and behind (figs. 6, 1). Mesonotum sloping very gradually to pronotum, thickly clothed with short semi-adpressed hairs; its sculpture very fine, especially on the lateral lobes where it is closely scaly-reticulate; on the middle lobe, it is slightly stronger and shows a feeble transverse tendency. Mesopleura, except within the upper anterior impression, smooth and shining everywhere, strongly convex, almost gibbose above the sternauli, which show as a smooth deep cleft, deepest in the middle. Propodeum with a long, irregular, basal carina, but without a distinct areola, at least in the two females available; the two dorsal areas, which are nearly smooth and longer than wide, fall away roof-wise from the central carina. Fore-wings with faint yellowish suffusions; recurrent nervure in one ♀ (Mossel Bay) received, not into the apex of the 2nd discoidal cell, but outside it, on to the nervus parallelus (this is the wing shown in fig. 1); in the other ♀ (Katberg), it is more or less interstitial with the discoidal vein; 2nd abscissa of the radius not at all longer than the 1st intercubitus. Legs : hind coxae smooth; outer side of hind tibiae with long semi-erect hairs, which are hardly shorter than the width of the tibia; segment 2 of the hind tarsus less than half 1; front tarsus nearly twice as long as its tibia, about

30 : 17; hind tibiae with 3 or 4 minute, hardly visible teeth on their outer margin. *Abdomen* almost petiolate (fig. 6). Petiole 2½ to 3 times as long as apically wide; feebly longitudinally striated on a rugulose surface, so that the sculpture appears indefinite in character. Following tergites smooth, at most the merest trace of striation at base of (2, 3). Ovipositor fully as long as the body.

Length: ♀, 2·7–3·3 mm. (without ovipositor).

E. Cape Province: Katberg (*R. E. Turner*), *Jan.* 1933, 1 ♀ type; Cape Province: Mossel Bay (*R. E. Turner*), *March* 1922, 1 ♀.

The long outstanding hairs of the hind tibiae and the virtual absence of sculpture on tergite (2, 3) are probably characteristic of the species.

Dendrosoter pallidistigma sp. n.

This species is very naturally related to *D. elegans*. It is amply distinct from that species and differs from it as follows:—

Head almost yellow. Legs pale reddish-yellow. Mesosternum pale reddish-brown. Mesonotum without darker patches. Abdomen beyond tergite 2 (which in this case is sharply delimited) mostly yellowish. Altogether a much more brightly coloured insect than *D. elegans*. *Head* behind the eyes completely smooth and shining. Eyes considerably larger and more prominent than in *D. elegans*, though, as in that species, virtually round. Antennae broken but with at least 26 segments. Ocelli arranged in a virtually equilateral triangle. Mesopleura less convex in the middle. 2nd abscissa of the radius about 1⅓ times as long as the 1st intercubitus. Hairs of legs much shorter and by no means so conspicuous a feature of the species as in the case of *D. elegans*. Sculpture of petiole (which is about 2½ times as long as apically wide) slightly stronger and more irregular. Tergite 2 sharply delimited by being strongly sculptured everywhere; the sculpture consists predominantly of long irregular striations, the spaces between the ridges rugulose.

Length: ♀, 4·3 mm. (without ovipositor).

Cape Province: Pondoland, Port St. John (*R. E. Turner*), *April* 1924, 1 ♀ type.

This and the preceding species form a natural group to which generic status will probably have to be given later. For the time being, however, I think it is better to leave them in *Dendrosoter* until some attempt has been made to place the already described Doryctine genera on a firmer foundation. The two species are characterised chiefly by their elongate form and narrow petiole.

Dendrosoter niger Szepligeti.

Dendrosoter niger Szepligeti, 1914, *Mitt. zool. Mus. Berlin*, **7** : 197.

Szepligeti's description suggests a relationship with *D. camerunus* End., with which his species may be identical. The similarity of data may be significant: *D. niger* has "Neu-Kamerun and Togo, (Conradt)" while *D. camerunus* has "Kamerun (Conradt)."

Type presumably in the Zoological Museum, Berlin.

Dendrosoter interstitialis Szepligeti.

Dendrosoter interstitialis Szepligeti, 1907, *Bull. Mus. Hist. nat. Paris*, **13** : 35.

Described from a single female from British East Africa.

From the fact of its having the recurrent nervure interstitial, this species may be related to *D. olynthus* and *D. camerunus*. Szepligeti himself says it is like *D. protuberans* (Nees).

Location of type unknown.

SOME NEW NEOTROPICAL SPECIES OF SCOLYTIDAE IN THE COLLECTION OF THE BRITISH MUSEUM * (COLEOPT.)

By Karl E. Schedl.

Communicated by G. J. Arrow, F.R.E.S.

Cnesinus coffeae sp. n.

♀. Ferruginous, 2·5 mm. long, 2·7 times as long as wide. A very slender species with rather dull pronotum, striate-punctate elytra and inconspicuous pubescence. *Front* shining, transversely concave below, the fundus of the concavity covered with a plush of short erect reddish hairs, shining and impunctate between the subapproximate eyes. *Pronotum* as long as wide, base bisinuate, angulate in the middle, postero-lateral angles obtuse and not rounded, sides nearly straight and divergent on more than the basal half, regularly and broadly rounded in front, surface feebly convex, nearly opaque, densely strigose, the strigae confluent, the median line visible as a narrow elevated line on the basal half, with pale and scale-like hairs in the anterior third. Scutellum moderate in size and not impressed. *Elytra* on the junction with the pronotum much wider (47 : 40), in the middle feebly wider (50 : 47) and 2·2 times as long as the pronotum, humeral angles rectangular, feebly rounded, sides subparallel on the anterior two-thirds, then gradually narrowed, the apex obtuse, declivity commencing far behind the middle, gradually convex, depressed on the two first interstices below, the third rather abruptly ascending on the inner side and gradually rounded towards the postero-lateral angles; disc narrowly striate-punctate, the striae moderately incised, the punctures indistinct, interstices rather wide and flat, densely reticulate-punctate; on the depressed portion of the declivity the two first interstices opaque, the sculpture more dense, the striae 1 and 2 narrow, feebly impressed and reaching the apical margin, the other interstices on the lateral convexities gradually narrowed, shortened, rugose and covered with sparse chaffy hairs.

What I believe is the male has the front dull, opaque, the anterior depression more shallow, with sparse pubescence, especially along the epistomal margin and on the sides of the depression.

Type and paratypes in the collection of the British Museum and paratypes in my own.

Colombia : La Esperanza, 15.ii.1937, *K. P. Roba*, ex *Coffea arabica*.

Phloeosinus neotropicus sp. n.

♀. Pronotum piceous, elytra dark ferruginous, 2·9 mm. long, not quite twice as long as wide. This species, which is the first of the genus from the West Indies, belongs to the group of *P. canadensis* Sw., *P. scopulorum* Sw. and *P. rugosus* Sw. From its relatives it can be distinguished by the declivital armature, especially in the male. *Front* shining, plano-convex, densely rugosely punctured, with a fine median carina, eyes narrowly emarginate in front, antennal club long oval, nearly as long as the funicle and scape together, the sutures oblique; mesosternal piece between the coxae wide and broadly emarginate.

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* 55th contribution on Scolytidae and Platypodidae.

Pronotum wider than long (70 : 45), when measured without the median projection on the base, the latter strongly bisinuate and medially angulate, sides convergent from the base to the apex, in broadly rounded arcuate lines, anterior constriction distinct, apical margin rather narrowly rounded, with a slight but distinct depression behind it; surface shining, very densely and deeply punctured, impunctate median line faint, pubescence inconspicuous. Scutellum extremely small. *Elytra* wider (80 : 70) and more than twice as long as the pronotum, widest at the middle, sides straight, broadly rounded at the apex, declivity commencing at the middle, uniformly convex; disc deeply but narrowly striate-punctate, the punctures somewhat ill-defined, interspaces convex, rather densely covered with transverse rugae; declivity with the interstices 1 and 3 more strongly convex and each with a row of tubercles, those of the third interstice placed, those of the suture remote, second interstice low, with fine punctures, all other interstices finely tuberculate, pubescence hair-like and inconspicuous.

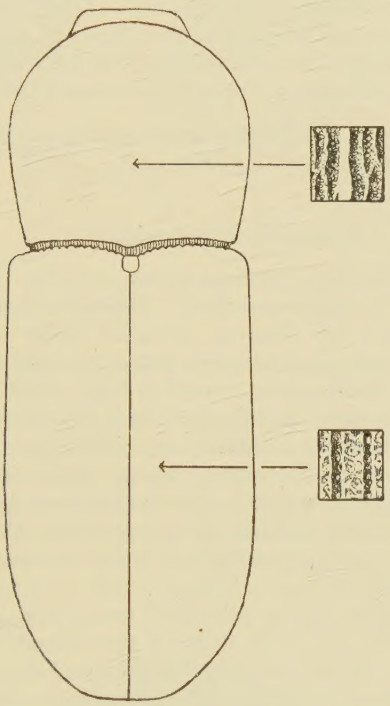

FIG. 1.—*Cnesinus coffeae* sp. n. ♀, outline and details of sculpture.

Compared with *P. rugosus* Sw. I find the following differences : *P. neotropicus* has the pronotum much more strongly punctured, the elytral striae are deeper and wider, the rugae of the interstices shorter and better defined, the tubercles of the first declivital interstice are much more remotely and somewhat irregularly placed.

♂. Front transversely depressed below, the median carina more distinct, the elytra more coarsely sculptured, first declivital interstice with three to four closely placed pointed tubercles, which increase in size towards the apex, on the remaining space with two very irregularly placed additional tubercles, fifth and seventh interstices each with a row of closely placed granules.

In *P. rugosus* Sw. the declivity is much more abruptly convex, the tubercles regular in arrangement, closely placed and with scale-like pubescence.

Type in the British Museum (♀) and paratype in my own collection (♂).
Jamaica : Cinchona, 1.viii.1923, *C. C. Gowdey*.

Hypothenemus cryphalomorphus sp. n.

Dark ferruginous, summit of the pronotum somewhat brighter, 1·4 mm. long, 2·1 times as long as wide. The general appearance is exactly as in the genus *Cryphalus* Er. *Front* subshining, transversely depressed below, with a transverse carina above, finely punctured. *Pronotum* wider than long (34 : 25), widest at the base, sides subparallel on the basal third, broadly rounded in front, anterior margin with four closely placed subequal teeth; summit high, transversely depressed behind, anterior area with few but rather coarse asperities, subshining and indistinctly punctured on the basal half. *Elytra* but little wider and twice as long as the pronotum, sides parallel on more than the basal half, broadly rounded at the apex, declivity short, evenly convex, subshining, with indistinct rows of fine punctures, pubescence scale-like and arranged in distinct rows (in one specimen abraded).

Type and paratypes in the British Museum and paratypes in my collection.
British West Indies : Trinidad, Fry Coll.

Xyleborus artecuneolus sp. n.

♀. Ferruginous, 2·6 mm. long, 2·3 times as long as wide. Rather closely related to *X. metacuneolus* Egg. and *X. mangoensis* Schedl. *Front* plano-convex, rugosely and coarsely punctured, medially with a low tubercle. *Pronotum* feebly wider than long (60 : 53), globose, base transverse, postero-lateral angles rectangular and feebly rounded, sides subparallel on the basal half, semicircularly rounded in front, anterior margin with several low and subequal asperities; summit in the middle very high, anterior area steeply convex, densely covered by small asperities, posterior area subshining, minutely reticulate, rather coarsely but shallowly punctured; anterior margin feebly produced downwards when viewed from the front. *Elytra* not quite as wide (at the base) and 1·6 times as long as the pronotum, humeral angles feebly rounded, sides subparallel on the basal two-thirds, thence obliquely convergent, apex narrowly rounded, declivity commencing somewhat before the middle, gradually and obliquely convex, aplanate in the lower half; disc striate-punctate, striae feebly impressed, the punctures moderate in size, rather shallow and closely placed, interspaces subconvex, each with a row of much more remotely placed punctures, these larger and rather irregular in arrangement near the base and the suture; declivity with the apical margin acute, the suture feebly elevated on the aplanate portion, the first row deeply impressed, the third interstice as high as the first, the three first interstices each with a row of small tubercles.

Type and paratypes in the collection of the British Museum and paratypes in my own.
Trinidad, *F. W. Urich*, 1914.

Metacorthylus ingaensis sp. n.

♂. Piceous, 1·8 mm. long, 2·1 times as long as wide. *Front* convex, sparsely, rather coarsely punctured. Antennae with the scape short and stout, clubbed at the apex, funicle with one single joint, the club rather large but much smaller than in the female, outline as in the figure below, with one septate suture and a second one indicated. *Pronotum* but little

longer than wide (46 : 44) without the anterior teeth, base transverse, postero-lateral angles rectangular and acute, sides parallel on the posterior half, thence obliquely convergent, apex rather narrowly rounded, medially armed with two very slender recurved tooth-like asperities; summit in the middle, anterior area with sparsely placed and very small asperities, posterior area silky shining, without punctures but with some transverse wrinkles in the continuation of the anterior asperities. Scutellum large and triangular. *Elytra*

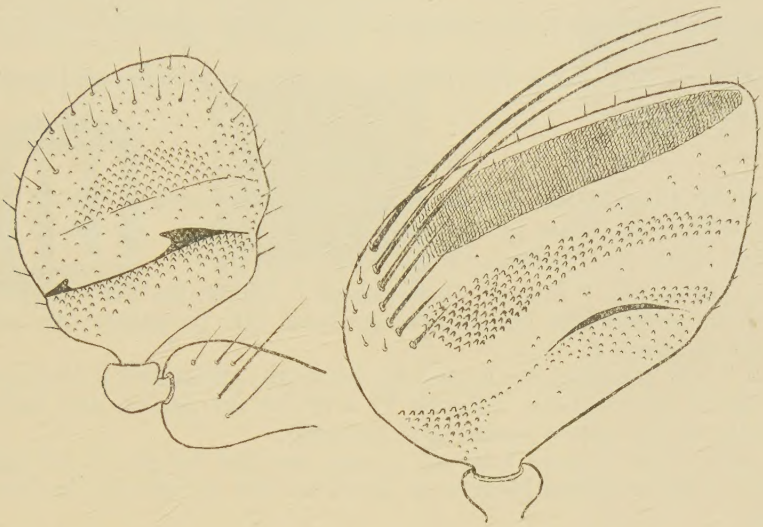

FIG. 2.—*Metacorthylus ingaensis* sp. n., antennae, left ♂, right ♀.

feebly wider (before the declivity) and 1·1 times as long as the pronotum, sides straight, broadly and abruptly rounded in the apical fourth, declivity very steep and convex; cylindrical, shining, with some very fine punctures and transverse wrinkles but without visible striae; declivity subperpendicularly convex, the suture finely carinate, depressed along the second interstice, the third interstice elevated and with three granules, apex acute and margined up to the seventh interstice. Fore tibia dentate on its outer margin.

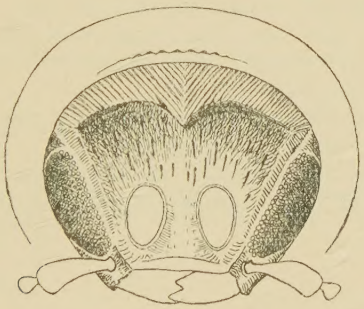

FIG. 3.—*Metacorthylus ingaensis* sp. n., head of ♀.

♀. Of similar size and proportions, the head excavate, with a fringe of long hairs on the upper margin, smaller hairs on the sides, the fundus of the cavity with two egg-shaped bright yellow spots, presumably secretory organs, and few chaffy hairs above; antenna

with the club much wider than long, somewhat similar to that of *Corthylus panamensis* Blandf., outline as in fig. 2, the first segment limited by a partly septate suture, with two transverse bands of sensory papillae, the superior edge with a thin flagellum of fine cirrhi curving round the apex and about as long as the club. Pronotum with the anterior margin more broadly rounded, the apical serrations low and numerous, the elytral declivity more coarsely sculptured on the sides below.

The smallest species of the genus, especially characterised by the front of the female.

Type and paratypes in the collection of the British Museum and paratypes in my own.

Colombia : El Collegio, 7.vii.1937, *R. P. Roba*, in branches of *Inga* sp.

Book Notice.

Die Tierwelt Deutschlands und der angrenzenden Meeresteile. Teil 35. Flöhe (Aphaniptera), Läuse (Anoplura). Von O. Jancke. pp. 78, 47 figs., 1 map. Jena (G. Fischer), 1938. Price Rmk. 7.50.

This part of the " Tierwelt Deutschlands " follows the plan of preceding parts of the series. The Aphaniptera are dealt with on pages 1–42, and the Anoplura on pages 43–78.

Each Order is treated the same; the treatment opens with a bibliography, and a list of abbreviations, followed by a key to the genera, and individual description of the species occurring in Germany.

To each Order is given a list of species arranged by their hosts and, for the Fleas, a list of species likely to be found but not yet recorded in Germany, is given.

Book Notice.

De Danske Storsommerfugle i deres Udbredelse i Nordsø-Østersøomraadet. By S. Hoffmeyer and S. Knudsen. Aarhus (Universitetsforlaget) and Kobenhavn (C. A. Reitzel). pp. 310, 8 pls., 1 map. 1938.

This book treats of the Macrolepidoptera of Denmark.

It is based on published records mainly, and these are quoted after the name of the species. The records of Jutland species is given more exactly by reference to the three zones, eastern, central, and western Jutland. The records of distribution in the remaining Danish areas are given and finally the distribution is given, in abbreviated form, for the whole North Sea and Baltic Sea areas, including Great Britain.

The book is written in Danish, but a list of the more frequently occurring words with their German equivalent is given.

Four new aberrations are described in this book.

An index to species and lower classes is given, as is a list of localities.